ENGINEERING DEPARTMENT

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HISTORIC
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Infiltration Testing Requirements

Question: When is infiltration testing required?

Answer: When your stormwater design includes an accounting for infiltration, that design must be backed by site-specific testing when:

- Runoff Reduction / Adjusted Curve Number Method is used to reduce required detention volume by accounting for infiltration volume
- A & B soils are assumed in BMP design
- Specifically required by the BMP manual for BMP design:
    - **GIP-01 Bioretention** – only for determining underdrain requirement or to determine bedrock and/or water table elevation
    - **GIP-02 Urban Bioretention** – only for determining underdrain requirement or water table elevation
    - **GIP-03 Permeable Pavement** – required for Level 2 design, determining underdrain requirement, or to determine water table elevation
    - **GIP-04 Infiltration Trench** – always required
    - **GIP-05 Water Quality Swale** – only for determining underdrain requirement or to determine water table elevation
    - **GIP-06 Extended Detention** – not required
    - **GIP-07 Downspout Disconnect** – always required
    - **GIP-08 Grass Channel** – not required
    - **GIP-09 Sheet Flow** – always required
    - **GIP-10 Reforestation** – required where regrading/alteration of the historic soil profile is proposed

In cases where the only requirement for testing is to determine the depth to bedrock and/or the seasonally high water table, standard geotechnical boring results that indicate these factors may be substituted for infiltration testing.

Question: What about USDA Web Soil Survey results? Can those be used in design?

Answer: Only for preliminary design. Preliminary BMP design based on USDA Web Soil Survey results is acceptable at the Pre-App and Initial Submittal stages, but must be verified with the required site-specific testing prior to final approval of the design.

While the USDA Web Soil Survey results are useful for general planning and land use management purposes (i.e. deciding which crops to plant), they are not intended for site-specific engineering design.

Every soil survey report generated from the USDA website has 2 disclaimers:

1. "Although soil survey information can be used for general farm, local, and wider area planning, onsite investigation is needed to supplement this information in some cases. Examples include…engineering applications."
2. "The delineation of such segments on the map provides sufficient information for the development of resource plans. If intensive use of small areas is planned, however, onsite investigation is needed to define and locate the soils and miscellaneous areas."

Soil survey results are also not applicable for infill/redevelopment projects where the historic soil profile has been modified or where the proposed site grading calls for deep cuts or fill since original soils surveyed may have been removed, replaced or overtopped with fill.

Question: At what point in the Site Plan review/approval process should testing results be submitted to the City?

Answer: Where infiltration testing is required, test results that support the design are required to be submitted prior to approval of the Site Plan. However, performing the required testing earlier in the process is strongly encouraged to aid in BMP design and to ensure that the approval process is not unnecessarily delayed. If the infiltration requirements of the proposed design are not met, redesign or additional BMP's will be required before the Site Plan can receive approval.

Question: What if I can't, or just really really don't want to do infiltration testing?

Answer: **IF INFILTRATION TESTING CAN'T OR WON'T BE PERFORMED, THE PROPOSED DESIGN MUST ASSUME WORST CASE CONDITIONS IN ORDER TO RECEIVE APPROVAL.** In terms of infiltration, worst case conditions are considered to be:

- D Soils specified in BMP design
- No proposed BMP's that specifically require infiltration testing for the design of the BMP itself
- No reduction of detention volume to account for infiltration (i.e. no adjusted curve numbers)
- Underdrains included in the design of the BMP

If the developer wishes to conduct infiltration testing at a later time (for example, once mass grading of a site is completed and the bottom elevation of the BMPs are now accessible for testing), Engineering staff would be willing to take the test results into account and allow for design modifications to reflect the actual field conditions. The initial design for Site Plan approval should still assume worst case conditions to receive Site Plan approval, as stated above, but this would allow for the design of the BMP's and/or detention facility to be re-examined and potentially reduced in size or underdrains eliminated once site-specific testing information is available.